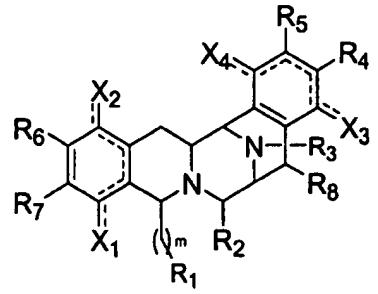
Amendment to Claims

This listing of claims will replace all prior versions and listings of the claims in the application.

Listing of Claims:

1-82. (Canceled)

~~83~~. (New) A compound having the structure (I):



(I)

wherein:

m is 0, 2, 3, 4, or 5;

R_1 is $-OR_A$ or $-SR_A$, wherein R_A is hydrogen, $-(C=O)R_C$, $-(SO_2)R_C$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_C is independently hydrogen, $-OR_D$, $-SR_D$, $-NHR_D$, $-(C=O)R_D$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_D is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein R_2 is hydrogen, $-OR_E$, =O, $-C(=O)R_E$, $-CO_2R_E$, -CN, -SCN, halogen, $-SR_E$, $-SOR_E$, $-SO_2R_E$, $-NO_2$, $-N(R_E)_2$, $-NHC(O)R_E$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_E is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein R_3 is hydrogen, -$COOR_F$, -COR_F, -CN, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_F is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein:

the foregoing aliphatic or heteroaliphatic moieties in R_1, R_2 and R_3 may independently be unsubstituted or substituted with one or more substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, -NO_2, -CN, -SCN, -CF_3, -$CHCF_3$, -$CHCl_2$, -CH_2OH, -CH_2CH_2OH, -CH_2NH_2, -$CH_2SO_2CH_3$, -$C(O)R_x$, -$CO_2(R_x)$, -$CON(R_x)_2$, -$OC(O)R_x$, -OCO_2R_x, -$OCON(R_x)_2$, -$S(O)_2R_x$, or –$B(OR_x)_2$ wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic and heteroaliphatic moiety is unsubstituted; and

each of the foregoing aryl, heteroaryl, or cycloheteroaliphatic moieties in R_1, R_2 and R_3 may independently be unsubstituted or substituted with one, two or three substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, -NO_2, -CN, -SCN, -CF_3, -$CHCF_3$, -$CHCl_2$, -CH_2OH, -CH_2CH_2OH, -CH_2NH_2, -$CH_2SO_2CH_3$, -$C(O)R_x$, -$CO_2(R_x)$, -$CON(R_x)_2$, -$OC(O)R_x$, -OCO_2R_x, -$OCON(R_x)_2$, -$N(R_x)_2$, -$S(O)_2R_x$, -NR_x $(CO)R_x$, or –$B(OR_x)_2$ wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio moiety is unsubstituted;

wherein R_4 and R_6 are each independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moieties in R_4 and R_6 are unsubstituted;

wherein R_5 and R_7 are each independently hydrogen, -OR_G, -$C(=O)R_G$, -CO_2R_G, -CN, -SCN, halogen, -SR_G, -SOR_G, -SO_2R_G, -NO_2, -$N(R_G)_2$, -$NHC(O)R_G$, or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety, wherein each occurrence of R_G is independently

hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where the each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moiety in R_5 and R_6 is unsubstituted;

wherein R_8 is hydrogen, alkyl, -OH, =O, -CN, -SCN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino;

wherein X_1, X_2, X_3 and X_4 are each independently hydrogen, $-OR_H$, =O, $-C(=O)R_H$, $-CO_2R_H$, -CN, -SCN, halogen, $-SR_H$, $-SOR_H$, $-SO_2R_H$, $-NO_2$, $-N(R_H)_2$, $-NHC(O)R_H$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_H is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moiety in X_1, X_2, X_3 and X_4 is unsubstituted;

whereby if at least either X_1 and X_2 or X_3 and X_4 are doubly bonded to the 6-membered ring, then the dotted bonds in either or both of the 6-membered rings represent two single bonds and one double bond, and a quinone moiety is generated, or if at least either X_1 and X_2 or X_3 and X_4 are singly bonded to the 6-membered ring, then the dotted bonds in either or both of the 6-membered rings represent two double bonds and one single bond, and a hydroquinone moiety is generated;

wherein:

each of foregoing acyl, alkoxy, alkylthio, thioalkyl, or alkylamino contains unsubstituted cyclic, acyclic, branched or unbranched alkyl of 1 to 10 carbon atoms;

each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing cycloheteroaliphatic moiety is a cyclic heteroaliphatic;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon; and pharmaceutically acceptable salts thereof.

84. (New) The compound of claim 83, wherein R_1 is $-OR_A$.

85. (New) The compound of claim 83, wherein R_1 is $-SR_A$.

86. (New) The compound of claim 83, wherein m is 0.

87. (New) The compound of claim 83, wherein m is 2, 3, 4, or 5.

88. (New) The compound of claim 86, wherein:

R_2 is -CN, -SCN, =O, -OH, H, or alkoxy;

R_3 is hydrogen, -CN, $-CH_2CN$, aliphatic, or aryl;

R_4 and R_6 are each unsubstituted alkyl;

R_5 and R_7 are each alkyloxy or thioalkyl;

R_8 is hydrogen, alkyl, -OH, =O, -CN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino; and

X_1, X_2, X_3, and X_4 are each independently alkoxy, -OH, or =O.

89. (New) The compound of claim 87 wherein:

R_2 is -CN, -SCN, =O, -OH, H, or alkoxy;

R_3 is hydrogen, -CN, $-CH_2CN$, aliphatic, or aryl;

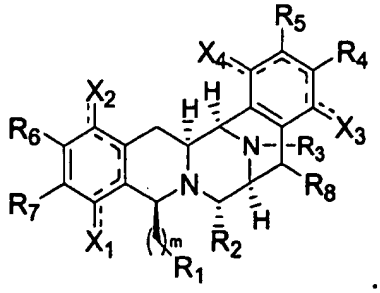
R_4 and R_6 are each unsubstituted alkyl;

R_5 and R_7 are each alkyloxy or thioalkyl;

R_8 is hydrogen, alkyl, -OH, =O, -CN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino; and

X_1, X_2, X_3, and X_4 are each independently alkoxy, -OH, or =O.

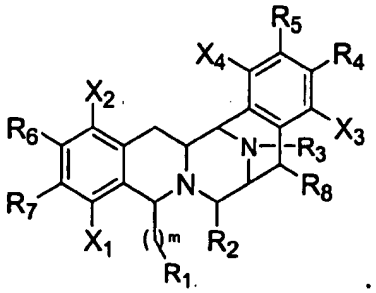
90. (New) The compound of claim 83, wherein the compound has the stereochemistry and structure:



91. (New) The compound of claim 90, wherein R_1 is $-OR_A$.

92. (New) The compound of claim 90, wherein R_1 is $-SR_A$.

93. (New) The compound of claim 83, wherein the compound has the structure:



94. (New) The compound of claim 93, wherein R_1 is $-OR_A$.

95. (New) The compound of claim 93, wherein R_1 is $-SR_A$.

96. (New) The compound of claim 93, wherein m is 0.

97. (New) The compound of claim 93, wherein m is 2, 3, 4, or 5.

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98. (New) The compound of claim 96, wherein:

R_A is hydrogen, unsubstituted lower alkyl, or -COR_C where R_C is (heteroaliphatic)aryl, substitued heteroaryl, substituted (aliphatic)heteroaryl, or substituted (heteroaliphatic)heteroaryl moiety;

R_2 is -CN, -SCN, =O, -OH, H, or alkoxy;

R_3 is hydrogen, -CN, -CH_2CN, aliphatic, or aryl;

R_4 and R_6 are each unsubstituted alkyl;

R_5 and R_7 are each alkyloxy or thioalkyl;

R_8 is hydrogen, alkyl, -OH, =O, -CN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino; and

X_1, X_2, X_3, and X_4 are each independently alkoxy, or -OH.

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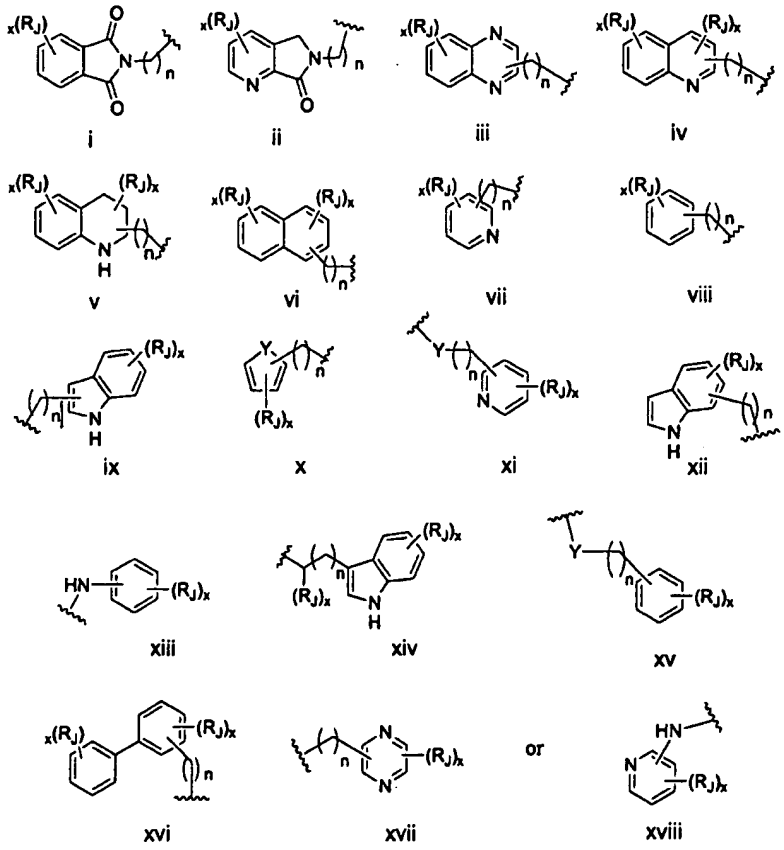
99. (New) The compound of claim 98, wherein:

R_C is:



wherein each occurrence of R_J is independently $-OR_K$, $-C(=O)R_K$, $-CO_2R_K$, -CN, -SCN, halogen, $-SR_K$, $-SOR_K$, $-SO_2R_K$, $-NO_2$, $-N(R_K)_2$, $-NHC(O)R_K$, $-B(OR_K)_2$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_K is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or wherein two occurrences of R_K, taken together form a cyclic aliphatic or heteroaliphatic moiety; wherein each occurrence of Y is independently O, S or NH; wherein each occurrence of x is independently 1-5; and wherein each occurrence of n is independently 0-3 wherein:

the foregoing aliphatic or heteroaliphatic is unsubstituted and

each of the foregoing aryl or heteroaryl moieties may independently be unsubstituted or substituted with one, two or three substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, , heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio is unsubstituted; and

wherein:

each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon.

100. (New) The compound of claim 97, wherein:

R_A is hydrogen, unsubstituted lower alkyl, or -COR_C where R_C is (heteroaliphatic)aryl, substitued heteroaryl, substituted (aliphatic)heteroaryl, or substituted (heteroaliphatic)heteroaryl moiety;

R_2 is -CN, -SCN, =O, -OH, H, or alkoxy;

R_3 is hydrogen, -CN, -CH_2CN, aliphatic, or aryl;

R_4 and R_6 are each unsubstituted alkyl;

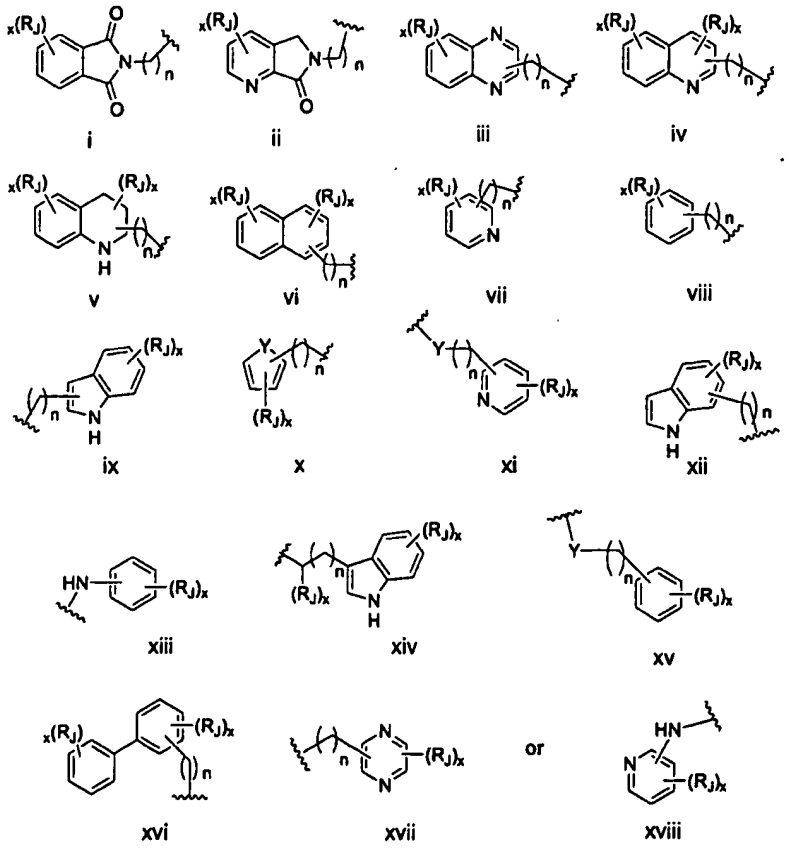
R_5 and R_7 are each alkyloxy or thioalkyl;

R_8 is hydrogen, alkyl, -OH, =O, -CN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino; and

X_1, X_2, X_3, and X_4 are each independently alkoxy or -OH.

101. (New) The compound of claim 100, wherein:

R_C is:



wherein each occurrence of R_J is independently $-OR_K$, $-C(=O)R_K$, $-CO_2R_K$, -CN, -SCN, halogen, $-SR_K$, $-SOR_K$, $-SO_2R_K$, $-NO_2$, $-N(R_K)_2$, $-NHC(O)R_K$, $-B(OR_K)_2$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_K is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or wherein two occurrences of R_K, taken together form a cyclic aliphatic or heteroaliphatic moiety; wherein each occurrence of Y is independently O, S or NH; wherein each occurrence of x is independently 1-5; and wherein each occurrence of n is independently 0-3 wherein:

the foregoing aliphatic or heteroaliphatic is unsubstituted and

each of the foregoing aryl or heteroaryl moieties may independently be unsubstituted or substituted with one, two or three substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio is unsubstituted; and

wherein:

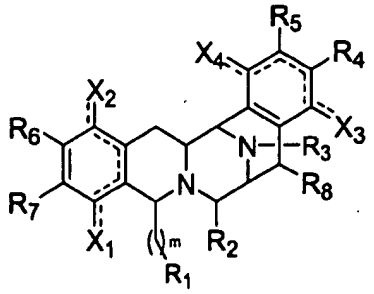
each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon.

102. (New) A compound having the structure:



wherein:

m is 1;

wherein R_1 is $-OR_A$ or $-SR_A$, wherein R_A is hydrogen, $-(C=O)R_C$, $-(SO_2)R_C$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_C is independently hydrogen, $-OR_D$, $-SR_D$, $-NHR_D$, $-(C=O)R_D$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_D is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein R_2 is hydrogen, $-OR_E$, =O, $-C(=O)R_E$, $-CO_2R_E$, -CN, -SCN, halogen, $-SR_E$, $-SOR_E$, $-SO_2R_E$, $-NO_2$, $-N(R_E)_2$, $-NHC(O)R_E$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_E is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein R_3 is hydrogen, $-COOR_F$, $-COR_F$, -CN, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_F is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein:

the foregoing aliphatic or heteroaliphatic moieties in R_A, R_2 and R_3 may independently be unsubstituted or substituted with one or more substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, -

$CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-S(O)_2R_x$, or $-B(OR_x)_2$ wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic and heteroaliphatic moiety is unsubstituted; and

each of the foregoing aryl, heteroaryl, or cycloheteroaliphatic moieties in R_A, R_2 and R_3 may independently be unsubstituted or substituted with one, two or three substitutents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moiety is unsubstituted; and

wherein R_4 and R_6 are each independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moieties in R_4 and R_6 are unsubstituted;

wherein R_5 and R_7 are each independently hydrogen, $-OR_G$, $-C(=O)R_G$, $-CO_2R_G$, -CN, -SCN, halogen, $-SR_G$, $-SOR_G$, $-SO_2R_G$, $-NO_2$, $-N(R_G)_2$, $-NHC(O)R_G$, or an unsubstituted aliphatic, unsubstituted heteroaliphatic, unsubstituted aryl or unsubstituted heteroaryl moiety, wherein each occurrence of R_G is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio. heteroaryloxy and heteroarylthio moieties in R_5 and R_7 is unsubstituted;

wherein R_8 is hydrogen, alkyl, -OH, =O, -CN, -SCN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino;

wherein X_1, X_2, X_3 and X_4 are each independently hydrogen, $-OR_H$, =O, $-C(=O)R_H$, $-CO_2R_H$, -CN, -SCN, halogen, $-SR_H$, $-SOR_H$, $-SO_2R_H$, $-NO_2$, $-N(R_H)_2$, $-NHC(O)R_H$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_H is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy,

alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moiety in X_1, X_2, X_3 and X_4 is unsubstituted;

whereby if at least either X_1 and X_2 or X_3 and X_4 are doubly bonded to the 6-membered ring, then the dotted bonds in either or both of the 6-membered rings represent two single bonds and one double bond, and a quinone moiety is generated, or if at least either X_1 and X_2 or X_3 and X_4 are singly bonded to the 6-membered ring, then the dotted bonds in either or both of the 6-membered rings represent two double bonds and one single bond, and a hydroquinone moiety is generated;

wherein:

each of foregoing acyl, alkoxy, alkylthio, thioalkyl, or alkylamino contains unsubstituted cyclic, acyclic, branched or unbranched alkyl of 1 to 10 carbon atoms;

each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing cycloheteroaliphatic moiety is a cyclic heteroaliphatic;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon; and pharmaceutically acceptable salts thereof provided that:

(i) it is not renieramycin A, B, C, D, E, or F;

(ii) R_1 is not $-O(C=O)C(CH_3)=C(CH_3)H$; -OH; $-(SO_2)CH_3$; $-O(C=O)CH_3$, $-O(C=O)CH_2CH_3$; or $-O(C=O)-O(i\text{-}C_3H_7)$; and

(iii) X_1 and R_7 are not joined together as a methylene-dioxy group.

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103. (New) The compound of claim 102, wherein R_1 is $-OR_A$.

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104. (New) The compound of claim 102, wherein R_1 is $-SR_A$.

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105. (New) The compound of claim 102, wherein the aliphatic and heteroaliphatic moieties in R_1, R_2, and R_3 are unsubstituted.

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106. (New) The compound of claim 105, wherein:

R_2 is -CN, -SCN, =O, -OH, H, or alkoxy;

R_3 is hydrogen, -CN, $-CH_2CN$, unsubstituted aliphatic, or aryl;

R_4 and R_6 are each alkyl;

R_5 and R_7 are each alkyloxy or thioalkyl;

R_8 is hydrogen, alkyl, -OH, =O, -CN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino; and

X_1, X_2, X_3, and X_4 are each independently alkoxy, -OH, or =O.

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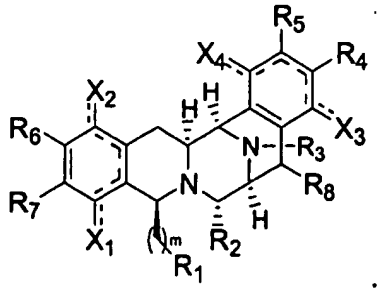
107. (New) The compound of claim 102, wherein the compound has the stereochemistry and structure:



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108. (New) The compound of claim 107, wherein R_1 is $-OR_A$.

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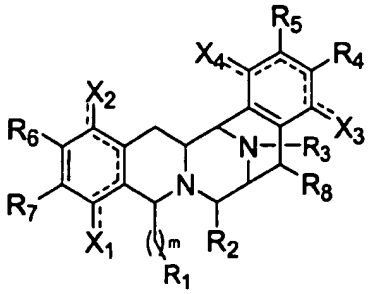
109. (New) The compound of claim 107, wherein R_1 is $-SR_A$.

28
110. (New) A compound having the structure:



wherein:

m is 1;

wherein R_1 is $-OR_A$ or $-SR_A$, wherein R_A is hydrogen, $-(C=O)R_C$, $-(SO_2)R_C$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_C is independently hydrogen, $-OR_D$, $-SR_D$, $-NHR_D$, $-(C=O)R_D$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_D is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein R_2 is hydrogen, $-OR_E$, =O, $-C(=O)R_E$, $-CO_2R_E$, -CN, -SCN, halogen, $-SR_E$, $-SOR_E$, $-SO_2R_E$, $-NO_2$, $-N(R_E)_2$, $-NHC(O)R_E$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_E is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein R_3 is hydrogen, $-COOR_F$, $-COR_F$, -CN, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_F is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety;

wherein:

the foregoing aliphatic or heteroaliphatic moieties in R_A, R_2 and R_3 may independently be unsubstituted or substituted with one or more substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-S(O)_2R_x$, or $-B(OR_x)_2$ wherein each occurrence

of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic and heteroaliphatic moiety is unsubstituted; and

each of the foregoing aryl, heteroaryl, or cycloheteroaliphatic moieties in R_A, R_2 and R_3 may independently be unsubstituted or substituted with one, two or three substitutents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moiety is unsubstituted; and

wherein R_4 and R_6 are each independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moieties in R_4 and R_6 are unsubstituted;

wherein R_5 and R_7 are each independently hydrogen, $-OR_G$, $-C(=O)R_G$, $-CO_2R_G$, -CN, -SCN, halogen, $-SR_G$, $-SOR_G$, $-SO_2R_G$, $-NO_2$, $-N(R_G)_2$, $-NHC(O)R_G$, or an unsubstituted aliphatic, unsubstituted heteroaliphatic, unsubstituted aryl or unsubstituted heteroaryl moiety, wherein each occurrence of R_G is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio. heteroaryloxy and heteroarylthio moieties in R_5 and R_7 is unsubstituted;

wherein R_8 is hydrogen, alkyl, -OH, =O, -CN, -SCN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino;

wherein X_1, X_2, X_3 and X_4 are each independently hydrogen, $-OR_H$, =O, $-C(=O)R_H$, $-CO_2R_H$, -CN, -SCN, halogen, $-SR_H$, $-SOR_H$, $-SO_2R_H$, $-NO_2$, $-N(R_H)_2$, $-NHC(O)R_H$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_H is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety where each of the foregoing aliphatic,

heteroaliphatic, aryl, heteroaryl, aryloxy, arylthio, heteroaryloxy and heteroarylthio moiety in X_1, X_2, X_3 and X_4 is unsubstituted;

whereby if at least either X_1 and X_2 or X_3 and X_4 are doubly bonded to the 6-membered ring, then the dotted bonds in either or both of the 6-membered rings represent two single bonds and one double bond, and a quinone moiety is generated, or if at least either X_1 and X_2 or X_3 and X_4 are singly bonded to the 6-membered ring, then the dotted bonds in either or both of the 6-membered rings represent two double bonds and one single bond, and a hydroquinone moiety is generated;

wherein:

each of foregoing acyl, alkoxy, alkylthio, thioalkyl, or alkylamino contains unsubstituted cyclic, acyclic, branched or unbranched alkyl of 1 to 10 carbon atoms;

each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing cycloheteroaliphatic moiety is a cyclic heteroaliphatic;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon; and pharmaceutically acceptable salts thereof provided that:

(i) it is not renieramycin A, B, C, D, E, or F;

(ii) all of X_1, X_2, X_3, and X_4 are not =O;

(iii) all of X_1, X_2, X_3, and X_4 are not -OMe; and

(iv) X_1 and R_7 are not joined together as a methylene-dioxy group.

27 28

111. (New) The compound of claim 110, wherein R_1 is $-OR_A$.

30 28
112. (New) The compound of claim 110, wherein R_1 is $-SR_A$.

31 28
113. (New) The compound of claim 110, wherein the aliphatic and heteroaliphatic moieties in R_1, R_2, and R_3 are unsubstituted.

32 28
114. (New) The compound of claim 110, wherein:

R_2 is -CN, -SCN, =O, -OH, H, or alkoxy;

R_3 is hydrogen, -CN, $-CH_2CN$, unsubstituted aliphatic, or aryl;

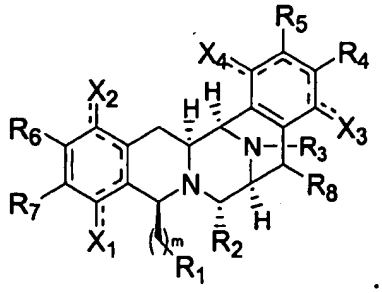
R_4 and R_6 are each alkyl;

R_5 and R_7 are each alkyloxy or thioalkyl;

R_8 is hydrogen, alkyl, -OH, =O, -CN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino; and

X_1, X_2, X_3, and X_4 are each independently alkoxy, -OH, or =O.

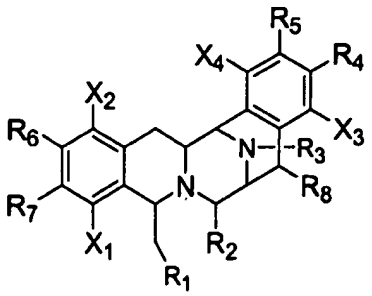
33 28
115. (New) The compound of claim 110, wherein the compound has the stereochemistry and structure:



34 33
116. (New) The compound of claim 115, wherein R_1 is $-OR_A$.

35 33
117. (New) The compound of claim 115, wherein R_1 is $-SR_A$.

36
118. (New) A compound that has the structure:



wherein:

R_1 is $-OR_A$ or $-SR_A$, wherein R_A is hydrogen, $-(C=O)R_C$, $-(SO_2)R_C$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_C is independently hydrogen, $-OR_D$, $-SR_D$, $-NHR_D$, $-(C=O)R_D$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_D is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety wherein:

the foregoing aliphatic or heteroaliphatic moieties in R_1 is unsubstituted;

the foregoing aryl moiety in R_1 may independently be unsubstituted or substituted with one, two or three substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, unsubstituted aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio is unsubstituted; and

the foregoing heteroaryl moieties in R_1 is substituted with one, two or three substitutents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of wherein each occurrence of R_x independently is aliphatic,

heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio is unsubstituted;

R_2 is -CN, -SCN, -OH, H, or alkoxy;

R_3 is hydrogen, aliphatic, or aryl;

R_4 and R_6 are each alkyl;

R_5 and R_7 are each alkyloxy or thioalkyl;

R_8 is hydrogen, alkyl, -OH, =O, -CN, halogen, -SH, alkoxy, thioalkyl, amino, or alkylamino;

X_1 and X_4 are each -OH; and

X_2 and X_3 are each alkoxy or thioalkyl; and

wherein:

each of foregoing alkoxy, alkylthio, thioalkyl, or alkylamino contains unsubstituted alkyl of 1 to 10 carbon atoms;

each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing cycloheteroaliphatic moiety is a cyclic heteroaliphatic;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

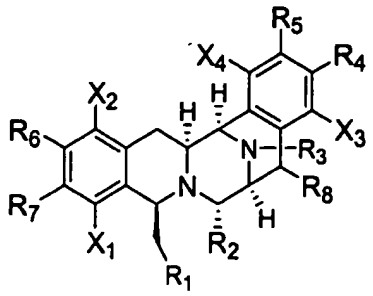
each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon; and pharmaceutically acceptable salts thereof.

119. (New) The compound of claim 118, wherein R_1 is $-OR_A$.

120. (New) The compound of claim 118, wherein R_1 is $-SR_A$.

121. (New) The compound of claim 118, wherein R_2 is -CN, -OH, or H; R_3 is Me; R_4 and R_6 are each Me; R_5 and R_7 are each -OMe; X_1 and X_4 are each -OH; R_8 is hydrogen; and X_2 and X_3 are each -OMe.

122. (New) A compound that has the structure:



wherein:

R_1 is $-OR_A$ or $-SR_A$, wherein R_A is hydrogen, $-(C=O)R_C$, $-(SO_2)R_C$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_C is independently hydrogen, $-OR_D$, $-SR_D$, $-NHR_D$, $-(C=O)R_D$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_D is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, heteroaryl, acyl, alkoxy, aryloxy, alkylthio, arylthio, heteroaryloxy, or heteroarylthio moiety wherein:

the foregoing aliphatic or heteroaliphatic moieties in R_1 is unsubstituted;

the foregoing aryl moiety in R_1 may independently be unsubstituted or substituted with one, two or three substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, unsubstituted aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio is unsubstituted; and

the foregoing heteroaryl moieties in R_1 is substituted with one, two or three substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio is unsubstituted;

R_2 is -CN, -SCN, OH, H, or alkoxy;

R_3 is hydrogen, aliphatic, or aryl;

R_4 and R_6 are each alkyl;

R_5 and R_7 are each alkyloxy or thioalkyl;

R_8 is hydrogen, alkyl, -OH, =O, CN, halogen, SH, alkoxy, thioalkyl, amino, or alkylamino;

X_1 and X_4 are each OH; and

X_2 and X_3 are each alkoxy or thioalkyl; and

wherein:

each of foregoing alkoxy, alkylthio, thioalkyl, or alkylamino contains unsubstituted alkyl of 1 to 10 carbon atoms;

each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing cycloheteroaliphatic moiety is a cyclic heteroaliphatic;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional

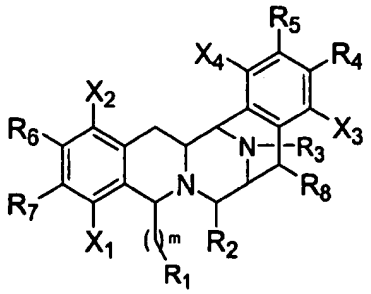
heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon; and pharmaceutically acceptable salts thereof.

123. (New) The compound of claim 122, wherein R_1 is $-OR_A$.

124. (New) The compound of claim 122, wherein R_1 is $-SR_A$.

125. (New) The compound of claim 122, wherein R_2 is -CN, -OH, or H; R_3 is Me; R_4 and R_6 are each Me; R_5 and R_7 are each OMe; X_1 and X_4 are each -OH; R_8 is hydrogen; and X_2 and X_3 are each OMe.

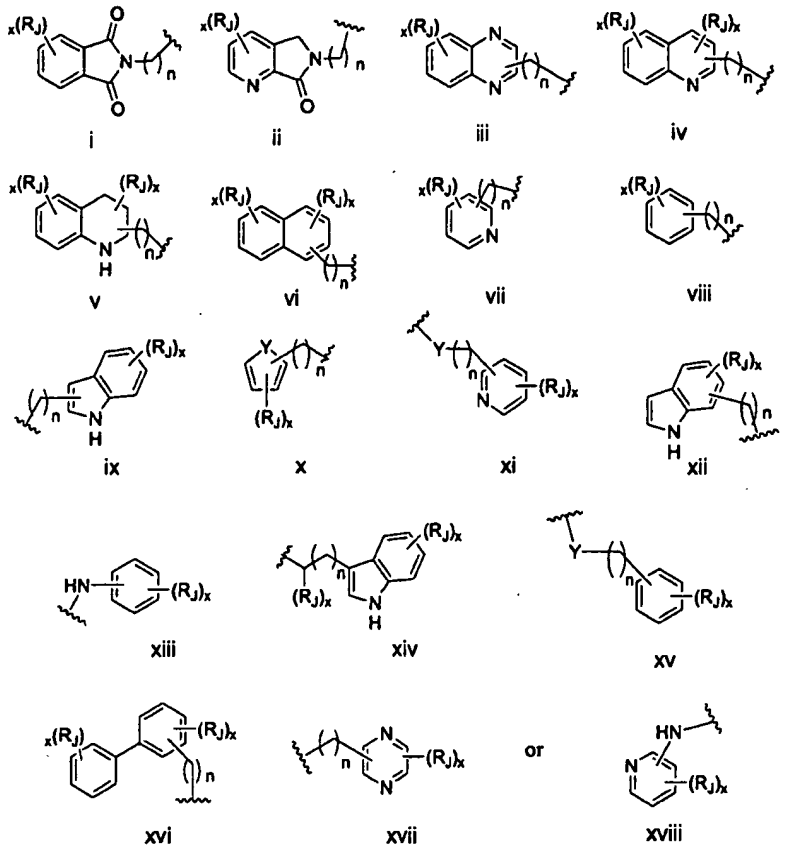
126. (New) A compound that has the structure:



wherein:

R_1 is $-O(C=O)R_C$ or $-S(C=O)R_C$;

R_C is:



wherein each occurrence of R_J is independently $-OR_K$, $-C(=O)R_K$, $-CO_2R_K$, -CN, -SCN, halogen, $-SR_K$, $-SOR_K$, $-SO_2R_K$, $-NO_2$, $-N(R_K)_2$, $-NHC(O)R_K$, $-B(OR_K)_2$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_K is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or wherein two occurrences of R_K, taken together form a cyclic aliphatic or heteroaliphatic moiety; wherein each occurrence of Y is independently O, S or NH; wherein each occurrence of x is independently 1-5; and wherein each occurrence of n is independently 0-3 wherein:

the foregoing aliphatic or heteroaliphatic is unsubstituted and

each of the foregoing aryl or heteroaryl moieties may independently be unsubstituted or substituted with one, two or three substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence

of wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, , heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio is unsubstituted; and

wherein:

each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

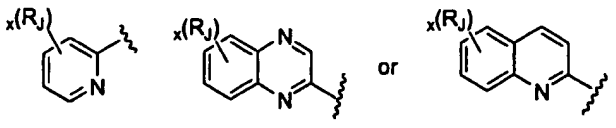
each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon; and pharmaceutically acceptable salts.

127. (New) The compound of claim 126, wherein R_1 is $-O(C=O)R_C$.

128. (New) The compound of claim 126, wherein R_1 is $-S(C=O)R_C$.

129. (New) The compound of claim 126, wherein X_1 is OH, X_2 is OCH_3, X_3 is OCH_3, X_4 is OH, R_2 is CN, H or OH, R_3 is Me, R_4 is CH_3, R_5 is OCH_3, R_6 is CH_3, R_7 is OCH_3, and R_8 is H.

130. (New) The compound of claim 129 wherein R_C is:



wherein R_J is hydrogen, halogen, -OH, lower alkyl or lower alkoxy and x is 1 or 2.

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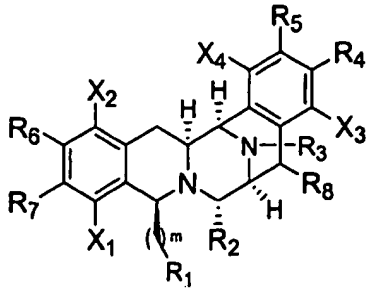
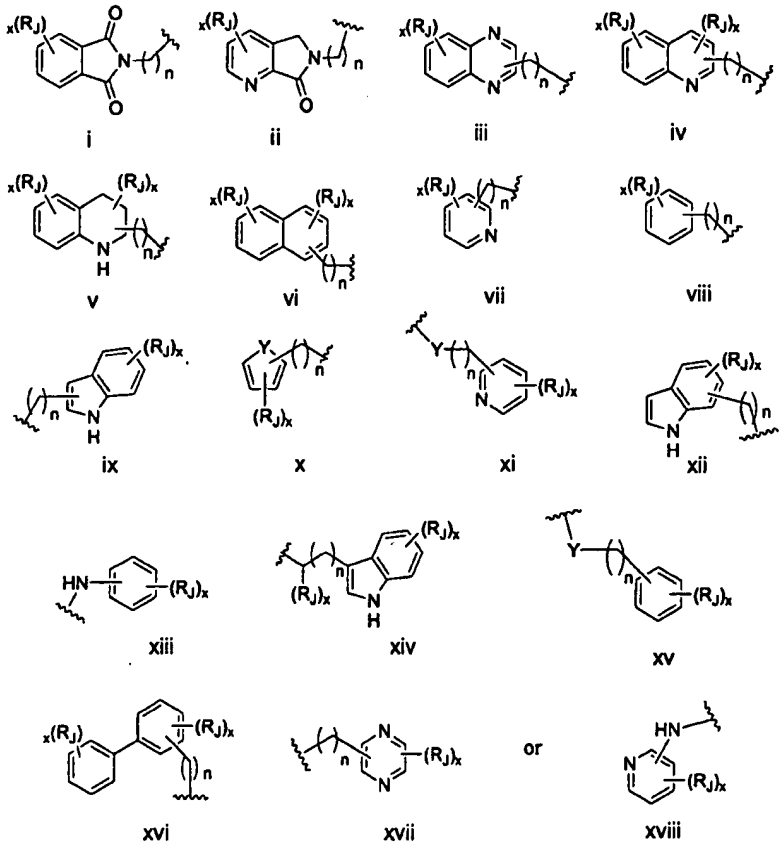
131. (New) A compound that has the structure:



wherein:

R_1 is $-O(C=O)R_C$ or $-S(C=O)R_C$;

R_C is:



wherein each occurrence of R_J is independently $-OR_K$, $-C(=O)R_K$, $-CO_2R_K$, -CN, -SCN, halogen, $-SR_K$, $-SOR_K$, $-SO_2R_K$, $-NO_2$, $-N(R_K)_2$, $-NHC(O)R_K$, $-B(OR_K)_2$, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, wherein each occurrence of R_K is independently hydrogen, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or wherein two occurrences

of R_K, taken together form a cyclic aliphatic or heteroaliphatic moiety; wherein each occurrence of Y is independently O, S or NH; wherein each occurrence of x is independently 1-5; and wherein each occurrence of n is independently 0-3 wherein:

the foregoing aliphatic or heteroaliphatic is unsubstituted and

each of the foregoing aryl or heteroaryl moieties may independently be unsubstituted or substituted with one, two or three substituents independently selected from aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, alkylheteroaryl, alkoxy, aryloxy, heteroaryloxy, alkylthio, arylthio, heteroarylthio, F, Cl, Br, I, -OH, $-NO_2$, -CN, -SCN, $-CF_3$, $-CHCF_3$, $-CHCl_2$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2SO_2CH_3$, $-C(O)R_x$, $-CO_2(R_x)$, $-CON(R_x)_2$, $-OC(O)R_x$, $-OCO_2R_x$, $-OCON(R_x)_2$, $-N(R_x)_2$, $-S(O)_2R_x$, $-NR_x(CO)R_x$, or $-B(OR_x)_2$ wherein each occurrence of wherein each occurrence of R_x independently is aliphatic, heteroaliphatic, aryl, heteroaryl, alkylaryl, or alkylheteroaryl where each of the foregoing aliphatic, heteroaliphatic, , heteroaryl, alkylaryl, alkylheteroaryl, aryloxy, heteroaryloxy, arylthio, and heteroarylthio is unsubstituted; and

wherein:

each of the foregoing aliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms;

each of the foregoing heteroaliphatic moiety is cyclic, acyclic, branched or unbranched alkyl, alkenyl, or alkynyl containing 1 to 10 carbon atoms and which further contains one or more oxygen, sulfur, nitrogen, phosphorus or silicon atoms in place of the carbon atoms;

each of the foregoing aryl is monocyclic or bicyclic carbocyclic ring system having one or two aromatic ring;

each of the foregoing heteroaryl is a cyclic aromatic radical having from five to ten ring atoms of which one ring atom is selected from S, O, and N; zero or two ring atoms are additional heteroatoms independently selected from S, O, and N; and the remaining ring atoms are carbon; and pharmaceutically acceptable salts.

50 49

132. (New) The compound of claim 131, wherein R_1 is $-O(C=O)R_C$.

51 49

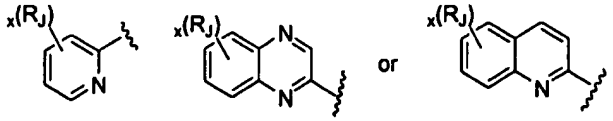
133. (New) The compound of claim 131, wherein R_1 is $-S(C=O)R_C$.

52

134. (New) The compound of claim 49, wherein X_1 is OH, X_2 is OCH_3, X_3 is OCH_3, X_4 is OH, R_2 is CN, H or OH, R_3 is Me, R_4 is CH_3, R_5 is OCH_3, R_6 is CH_3, R_7 is OCH_3, and R_8 is H.

53

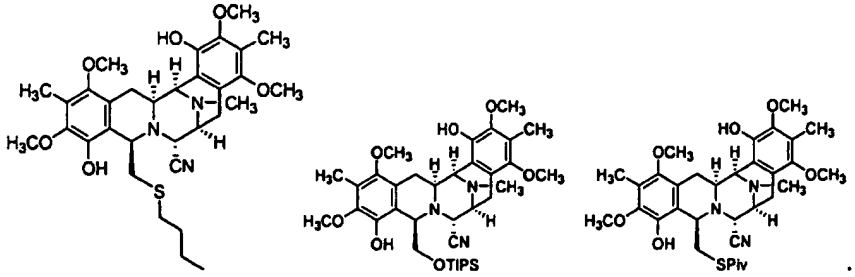
135. (New) The compound of claim 52, wherein R_C is:



wherein R_J is hydrogen, halogen, -OH, lower alkyl or lower alkoxy and x is 1 or 2.

54

136. (New) A compound selected from the group consisting of:



55

137. (New) A pharmaceutical composition comprising a compound of any one of the claims 83-87, 90, 93, 102, 107, 110, 118, 122, 126, and 131.

56

138. (New) A method for inhibiting the growth of or killing cancer cells comprising contacting the cells with an amount of a composition effective to inhibit the growth of or to kill cancer cells, the composition comprising a compound of any one of the claims 83-87, 90, 93, 102, 107, 110, 118, 122, 126, and 131.

57 56

139. (New) The method of claim 138, wherein the cancer cells comprise melanoma cancer cells or lung cancer cells.

58

140. (New) A method for treating cancer comprising:

administering to a subject in need thereof a therapeutically effective amount of a

composition comprising a compound of any one of the claims 83-87, 90, 93, 102, 107, 110, 118, 122, 126, and 131.

59 58
141. (New) The method of claim 140 wherein said composition comprises one or more cytotoxic agents.

60 59
142. (New) The method of claim 140, wherein the cancer cells comprise melanoma cancer cells or lung cancer cells.